

SIPUNCULIDS AND ECHIURIDS COLLECTED BY MR. G. RANSON
IN OCEANIA IN 1952.

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This small collection, containing 1 Echiurid and 2 species of Sipunculids, one of which is new to science, was collected by Mr. G. RANSON at the Tuamotu or Low Islands and Tahiti in 1952. I beg Mr. RANSON to accept my best thanks for having handed over this collection to me.

CLASS SIPUNCULOIDEA.

Siphonosoma (subgen. *Dasmosiphon* Fisher 1950) *cumanense*
(Kef.) 1866.

Locality : Tahiti.

Remarks : Only a single specimen, which measures about 7 cm with partly withdrawn proboscis. The colour is darkbrown, the skin thick and tough, opaque with numerous dark, low, circular papillae, which on the introvert are arranged in rings, on the trunk in longitudinal rows. There are no hooks on the introvert; numerous filiform, short tentacles surrounding the mouth. The 18 longitudinal muscle-bands are clearly seen through the skin. The four retractors arise from the same level, nearly in the middle of the body, the dorsal ones from the 7th and 8th band, the left ventral from the 1st to 3rd, the right from the 3rd and 4th. (This asymmetry must be considered abnormal).

The intestinal convolutions are anteriorly anchored by means of four fixing muscles, viz. : 1° dorsally and at the level of the openings of the segmental organs and between the 10th and 11th band a long, slender fibre arises and fastenes to the rectum just behind the rectal diverticle; 2° at the level of the retractors and from the 9th left muscle band another long fibre arises, fastening to one of the last convolutions; 3° close to the nerve-cord, from the first right band two muscles arise and fasten to the last convolution; 4° finally from the right ventral retractor a shorter and stouter muscle branches off and fastens to the ventral side of the posterior end of the oesophagus. A stout spindle-muscle fastens posteriorly near to the hindmost tip of the trunk. The rectum is attached to the body-

wall by a broad wing-muscle and the anus is situated fairly far behind the base of the introvert. The rectal diverticle is very small. The Polian vessel has numerous tiny tubules or vesicles arranged in two rows. This agrees with the observation of SURPLEY, who states : « The numerous diverticula of the heart are very definitely arranged in two lateral rows » (1899, p. 157).

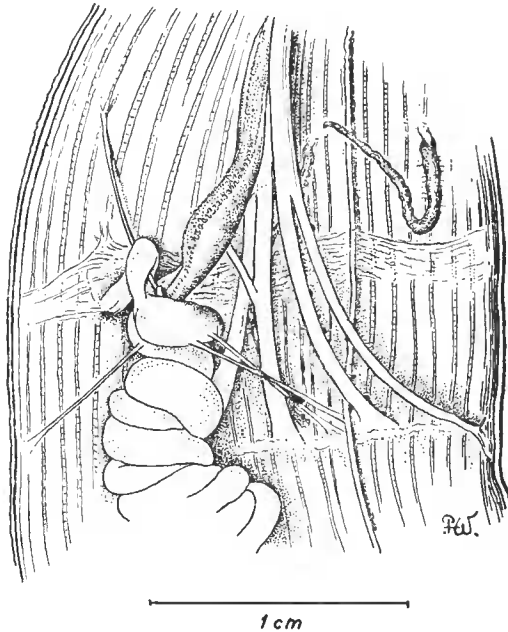


FIG. 1. — Anatomy of *Siphonosoma cumanense* (Kcp.).

The two segmental organs are brownish-red, rather short, slender tubes, fastened to the body-wall only in their anterior third. The characteristic transverse, pouch-like dissepiments stretching across the body on the inside of the skin and opening backwards, are more prominent and numerous in the posterior third of the trunk.

On account of the thick, opaque and red-brown skin the specimen must be regarded as belonging to the variety *semirugosa* Sel. & Bülow (1883, p. 106).

Distribution : The species is rather common in the East Indies ; it is also reported from the Red Sea, the Bay of Bengal, Zanzibar, Madagascar and from Japan. It is previously known in Oceania, e. g. from the Loyalty Islands.

Phascolosoma¹ **multianulata** n. sp.

Locality : Hikueru, Tuamotu-or Low Archipelago (Océanie).
About 500 specimens.

Remarks : The specimens are all of small size ; the largest ones measure about 25 mm, the smallest only 4-5 mm. Because of the various degrees of contractions it is impossible to give an exact proportion between the length of the trunk and the proboscis, which is protruded only in a few specimens. It is however, narrower and most probably slightly shorter than the trunk.

The skin of the body-wall is thin, light reddish and of a silky lustre, the longitudinal muscle bands are shimmering through. At the bases of the introvert is a broad girdle of dark brown tubercles, broadest and most deeply coloured on the dorsal side, where they are larger and more crowded than on the ventral side. Also round the posterior end of the trunk there is a girdle of papillae, but these are smaller and lighter coloured and much more scattered than those at the base of the introvert.. The midventral papillae are very small and few, yet gradually increasing in size and density towards the middorsal region ; in some specimens the dorsal papillae form a continuous dark streak from the posterior end to the base of the introvert ; specimens were even found in which this streak continued far out on the dorsal side of the introvert. Finally, specimens were also found in which the anterior part of the trunk was devoid of or only sparsely covered with minute papillae.

There are three kinds of papillae on the trunk ; some are dark brown, elliptical in outline more or less coniform and covered with numerous small, polygonal platelets arranged radially from the clear central pore to the peripheri, which is formed by a highly refractive contour (fig. 2, 3). Others are lower, without the refractive contour, nearly colourless and with platelets reduced to tiny granules, irregularly arranged (fig. 2, 4). The third kind are the much smaller, quite circular and only slightly vaulted ventral papillae (fig. 2, 5). The tubercles from the base of the introvert are a specialized form of the first described papillae ; they are higher, more heavily pigmented and circular or polygonal in outline (fig. 2, 1 and 2).

The hooks of the introvert form rings highly varying in numbers in the different animals. Those just behind the tentacular crown are closed, farther backwards they may be incomplete, most often only

1. FISHER has given an account of the generic names **Phascolosoma**, **Physcosoma** and **Phymosoma**. The former has the priority for the two others, which for many years erroneously have been used for species in which the tentacular crown is situated dorsal to the mouth (FISHER 1952, pp. 388-389).

present dorsally, and often interrupted by areas completely devoid of rings. The number of rings may amount to about 150. The hooks are very characteristic (fig. 3). The terminal tooth is sharply

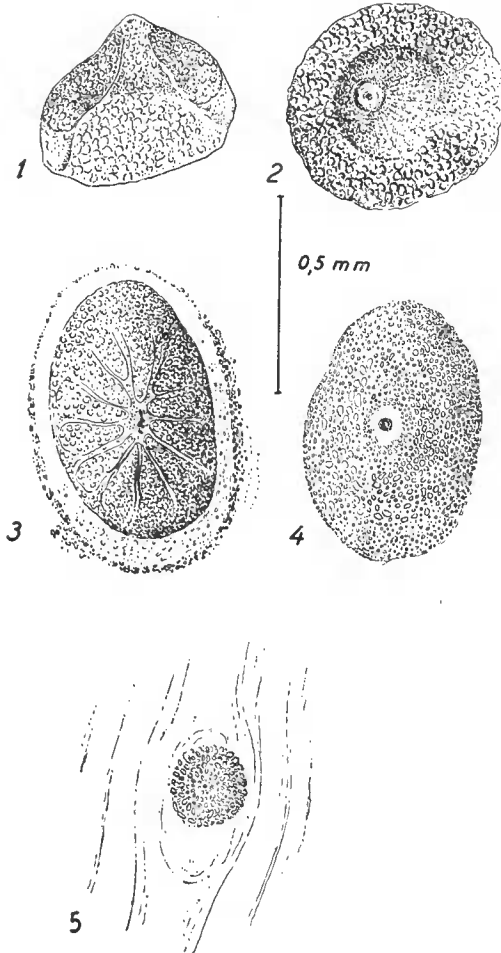


FIG. 2. — Papillae from the skin of *Phascolosoma multianulata* n. sp. ; 1 and 2 from the introvert ; 3, 4 and 5 from the trunk.

bent forming a right angle with the broad, basal part ; below the tooth is a big, rounded « hump ». The clear median streak is very narrow, and the clear triangular space which is more or less separated from this latter is only low and narrow. The chitinous, archformed band at the base of each hook has 8-12 « fringes ». In the interval

between each row of hooks are a few minute corpuscles; they are flat, circular in outline and arranged in a rather peculiar way. They form rings close in front of the rings of hooks and are situated fairly long from each other, i. e. one papilla in front of each 10th to 12th hook. If we say that in a certain ring they are found in front of the 1st and the 12th and the 24th hook, they will in the following and the preceding ring lie in front of the 6th, the 18th and the 30th hook and so on (fig. 4).

In a few specimens the tentacular crown is expanded. There are 12 tentacles forming a circle open dorsally to the mouth and

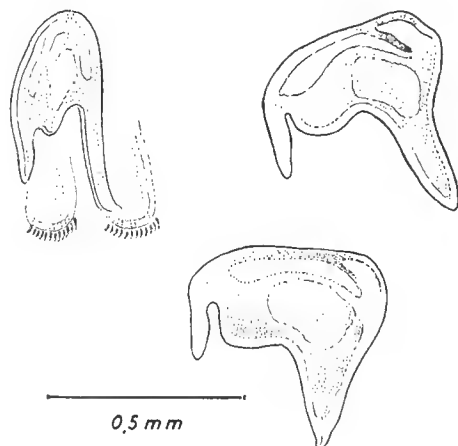


FIG. 3. — *Phascolosoma multianulata* n. sp., Hooks.

enclosing the relatively large, pear-shaped nuchal organ and the brain. The oral disk including the tentacular crown is surrounded by a slightly coloured ring, the cephalic collar, and just behind this is a delicate fold, the cervical collar, closely followed by the rings of hooks (fig. 5).

In the post-proboscideal region the longitudinal muscles are divided into separate bands which do not anastomose. The numbers of the bands vary rather much in different specimens. In a specimen about 2.5 cm long there are 20-24 fascicles, the lesser number being at the level of the nephridiopores; shortly in front of them the muscles fuse to a continuous sheet. The introvert was frequently invaginated far beyond this point, and the retractors were therefore highly contracted. There are four retractor muscles; the ventral pair arises with double roots from four muscle bands (the 2nd to the 6th), the dorsal pair which is much more slender, only from two bands (the 3rd and the 4th) and slightly in front of the ventral pair.

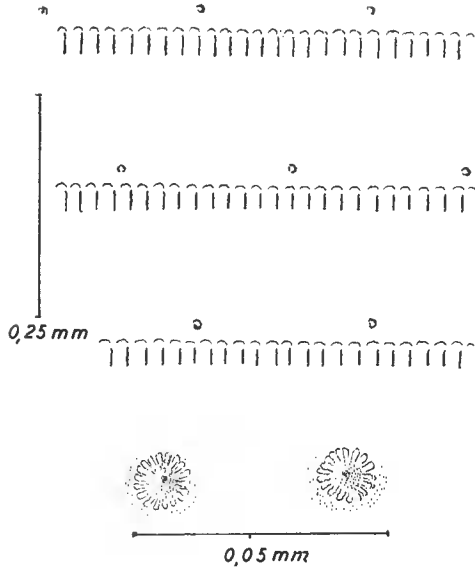


FIG. 4. — *Phascolosoma multianulata* n. sp., Diagram of the arrangement of hooks and papillae on the introvert.

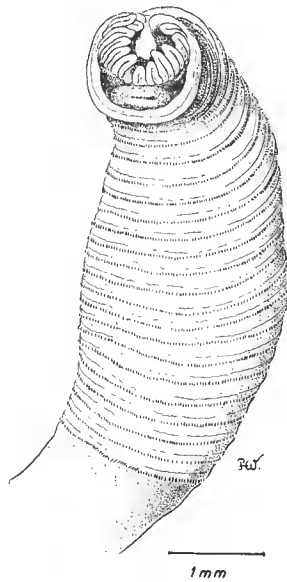


FIG. 5. — *Phascolosoma multianulata* n. sp., Anterior part of the proboscis.

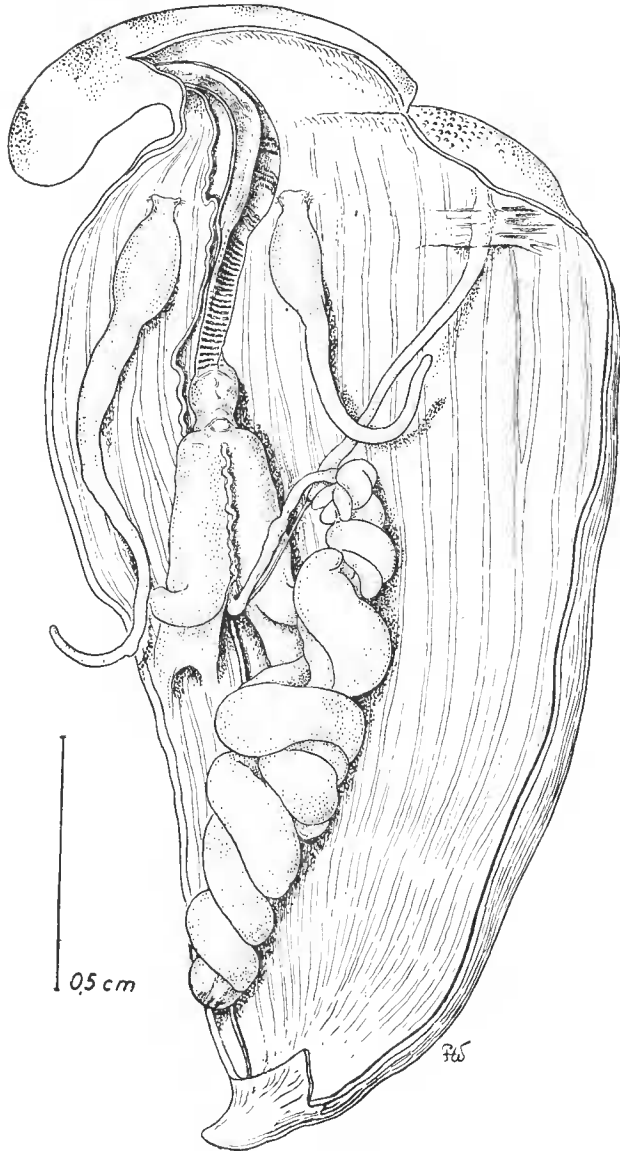


FIG. 6. — *Phascolosoma multianulata* n. sp., Internal anatomy.

There is a single intestinal anchoring muscle which arises in the ventral midline at the same level as the origin of the ventral

retractors ; it is attached by means of two slender branches, one to the postoesophageal gut and one to the rectum. The anus opens far behind the introvert and at a short distance behind the nephridiopores. The rectum is fastened by a broad, racemoceous wing-muscle.

The segmental organs are long and slender, often of unequal length ; they are for two thirds of their length attached to the body-wall by a delicate mesenterium. The nephrostomes are slightly expanded, and their external openings are between the 3rd and the 4th muscle-fascicles. The gonads at the roots of the ventral retractors were in all specimens very slightly developed, and sexual products were not found in the coelomic fluid.

It is seen that the internal anatomy is in close accordance to that of the genus *Phascolosoma* Leuck. ; but as far as I can see the present specimens differ from other hitherto described species in the combination of the following features : the shape of the hooks, the large number of hooks carrying rings and the shape and the distribution of the different papillae of the skin.

All the specimens were found on the sea-shore of a little coral-island in a quarternary uplift formed by fossil, more or less compact coral-blocks, which were completely perforated by the tunnels of the little sipunculid. Furthermore only those blocks were inhabited which daily for a couple of hours lay beyond the reach of the surf ; evidently the species require to be dry for a certain time each day. Specimens were never found either in sponges or under stones.

CLASS ECHIUROIDEA.

Ochetostoma erythrogrammon (Leuck & Rüpp.) 1828

Locality : Tahiti.

Remarks : Two specimens, the larger one measuring about 4 cm inclusive the introvert, which has been lost in the smaller one, the trunk of which measures 20 mm.

The skin is thick and tough, opaque ; the hooks small and only visible under the microscope.

The largest specimen was dissected ; it showed 18 longitudinal muscle-bundles, three pairs of long, brownish nephridia with slightly eurbed spiral appendages at their coelomic apertures. The first pair opens in front of the ventral setae, the two others behind. Numerous delicate muscle-fibres fasten the alimentary canal to the body-wall. Two long anal vesicles with rather few minute unstalked funnels.

Distribution : The species is mainly restricted to tropical waters and most commonly found in low water or on the beach below

coral-blocks or in coral sand. It is especially common in the East Indies ; it is reported from different Islands in the Pacific, but as far as I can see not previously from Tahiti. Other localities are the Red Sea, the Islands in the Bay of Bengal, Zanzibar, Formosa, Korea. From the western hemisphere it is reported from the Bahamas.

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